

Spotted owls (*Strix occidentalis*) in western Washington and Oregon are known to select older, unmanaged forests at spatial scales ranging from the foraging and roosting sites of individuals to the landscapes inhabited by local populations. But the current distribution of old forests is inadequate to maintain a network of interacting local populations. Thus, the success of any conservation strategy for spotted owls is contingent, in part, upon owls finding habitat in managed forests. Spotted owls are known to use managed forest stands throughout the region for dispersal, roosting, foraging, and breeding. Owls use managed forests in home ranges containing a mix of cover-types, from old-growth to young plantations, and in ranges with little or no old forest cover. Several homogeneous, managed-forest landscapes in the region contain numbers of reproductive owl pairs. However, the degree to which these varying uses of managed forests suggests that spotted owls are adapting to human-altered environments is unknown. Information needed to address that question includes relationships among: stand structure and owl use; characteristics of managed-forest landscapes and occupancy by owls; performance of owl populations in managed-forest landscapes; and the relationships among owl populations in old-forest and managed-forest landscapes. Ongoing investigations of those aspects of owl ecology will strengthen our understanding of the nature of spotted owls' adaptation to managed forests and will support more effective conservation strategies.

#### VULTURES IN A MAN-MADE WORLD

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Scavenging birds differ from other raptors in their reaction to human disturbance to the environment. Some vulture species appear to benefit from human activities, and occur at higher densities in areas of high human population than in natural wildlife communities. But other species have shown serious population declines. In all species so far studied the size of the food supply is not an important factor in the decline of vulture species. Increased mortality rates are the major cause, and are particularly important because of the slow reproductive output of vulture populations. Human-induced causes of mortality for vultures differ from those affecting most raptors, with poisoning and bad power line design being the major factors. Fortunately vulture populations respond well to management methods, and techniques for the recovery of vulture populations and reintroduction programs will be discussed.

#### POPULATION VIABILITY ANALYSIS OF URBAN MERLINS

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Population viability analyses are usually conducted on declining wildlife populations. One of the central goals of conservation biology is the restoration of such populations. It is therefore important to understand the dynamics of increasing populations. However, such populations are relatively rare and little studied. We present a population viability analysis of an increasing urban merlin (*Falco columbarius*) population that has been under study for over 20 yr. Our hope is to provide a framework with which to measure the success of future increases in threatened raptor populations.

#### THE BREEDING ECOLOGY OF TAWNY OWL, *STRIX ALUCO*, IN URBAN AND RURAL ENVIRONMENTS: A COMPARATIVE STUDY

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Nesting boxes were erected in urban ( $N = 17$ ), suburban ( $N = 8$ ) and rural ( $N = 11$ ) environments during 1986 in and around Bedford town, England. Breeding attempts by tawny owl (*Strix aluco*) were monitored. Time of breeding season, numbers of eggs and numbers of young fledged were recorded, as was prey recorded in nesting sites. Pellets were analyzed from adults and fledged young. Dispersal of young was monitored by ringing and radiotelemetry. During the study, avian prey species recorded were comparable between environments, though micro-mammals were absent in the diet of the urban population. Reproductive levels fluctuated in the rural and suburban environments, but were constant at the urban sites. Therefore, the cycling of reproductive levels appears to be driven by small mammal populations. Urban pairs did not breed in seasons of low productivity in the rural environment. This effect affects the lifetime reproductive success of individuals in the urban population which raise only half the number of young in comparison with the other environments. Time of breeding season was 4–5 wk advanced in the urban environment in comparison with rural birds. Young raised in the urban environment dispersed into the rural environment. Competition for nesting boxes by other species did not restrict the use of boxes by tawny owls in this study.

#### GOSHAWK ADAPTATION TO DEFORESTATION IN EUROPE

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Palaearctic goshawks (*Accipiter gentilis*) are often perceived as birds of the northern forests. In European taiga their densities are rarely as high as five breeding pairs per 100 km<sup>2</sup>, with nests in mature forest, and breeding diet primarily young grouse. Winter home ranges often exceed